

Trend Study 25C-15-98

Study site name: Steep Creek Bench .

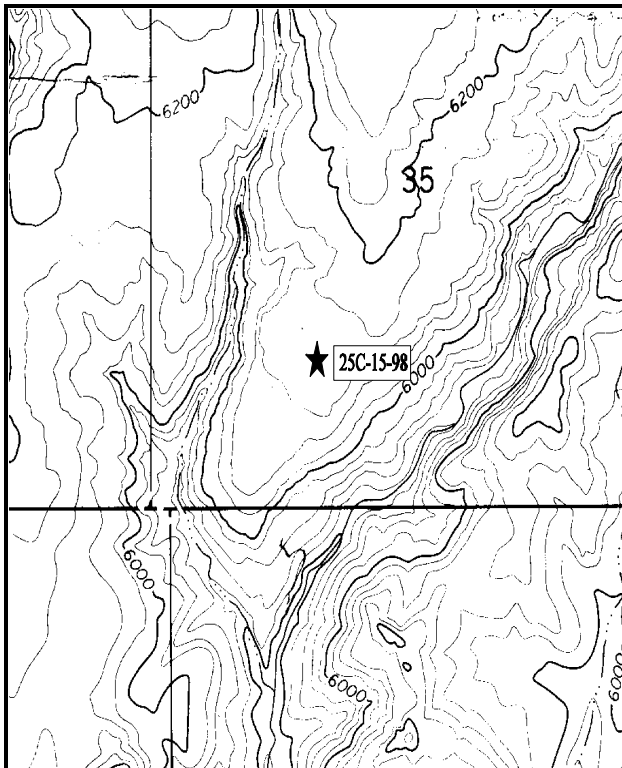
Range type: Pinyon-Juniper .

Compass bearing: frequency baseline 180 degrees.

Footmark (first frame at) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line4 (71ft).

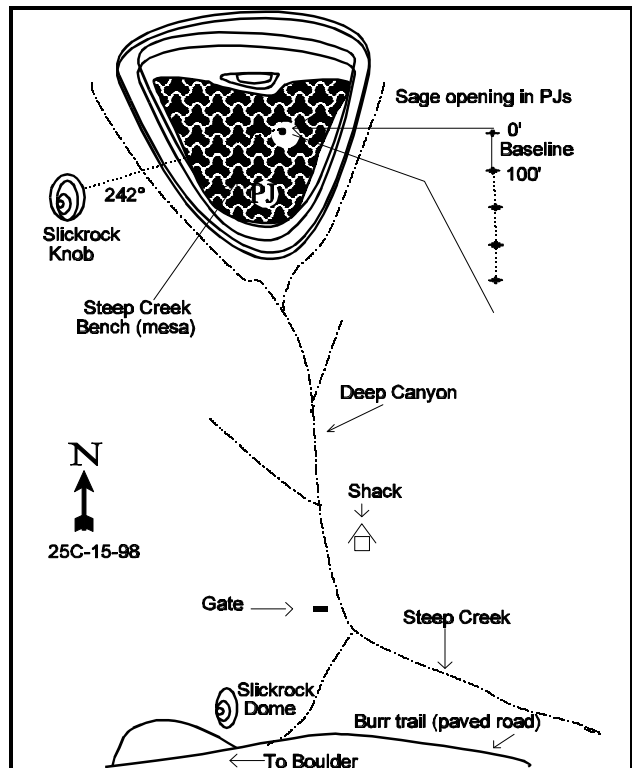
LOCATION DESCRIPTION

From the town of Boulder, take the Burr Trail for about 6.2 miles to Deer Creek. Continue on the road for 2.0 miles to a large sandstone monolith on the left with a dirt road at its base. This is the start of the trail to Steep Creek. Follow the wash on the east side of the Slickrock Dome 1/2 - 3/4 miles north to Steep Creek, then travel up the creek bottom for approximately 1 mile to a minor fork. Pick your way up the ridge between Steep Creek and the fork to the top of the bench. Continue north through the P-J to the first major sage/grass opening. The transect is located in this opening. Bearings to visible landmarks are detailed on the accompanying map. The study markers are 1-foot tall fenceposts, and the 0-foot baseline stake is tagged #7132.



Map Name: Steep Creek Bench

Township 33S , Range 5E , Section 35



Diagrammatic Sketch

UTM 4193507.175 N, 471324.269 E

DISCUSSION

Trend Study No. 25C-15 (44-15)

Steep Creek Bench is located in the rugged, inaccessible canyon country of "The Gulch" drainage south of Boulder Mountain. Deer and elk that move south off the mountain can end up here in winter. There are a few deer that stay in this low country all year long. Low annual precipitation, slick rock, and sandy soil limit the potential vegetative types to "sparse" pinyon-juniper with scattered small open parks of sagebrush and grass. This extensive type is represented by the study on the south end of Steep Creek Bench. The terrain is basically level at the site and exposure is insignificant with an elevation of 6,100 feet. The area is used by deer and cattle. Pellet group data from 1998 estimate 27 deer and 9 cow days use/acre. Cow sign appeared to be from the previous winter. Deer antler sheds were also found in 1998. Pellet group quadrat frequency data shows similar use in 1994. Rabbit sign is also frequent.

The typical soil is a deep, loose sand with an effective rooting depth (see methods) estimated at just over 22 inches. The soil has a neutral pH (7.2). Phosphorus may be limiting to plant development at only 3 ppm, when 10 ppm is considered a minimum value. Soil organic matter is also very low at only 0.3%. Percent bare ground is abundant ranging from 65% in 1991 to 47% in 1998. In some recurrent open spots, constantly shifting dunes are formed by the wind. Weather-scoured depressions and wind deposition cause more significant soil movement than water erosion.

Mature pinyon-juniper is the dominant overstory. The stand is open, with many stunted older trees because of poor site potential. Point quarter data taken in 1994, estimates tree density at 54 trees/acre, with pinyon being the most abundant. Point quarter data from 1998 estimate 33 pinyon and 26 juniper trees/acre. Average basal diameter of pinyon is 8.9 inches while juniper averages 22.8 inches. Pinyon and juniper combine to provide half of the browse cover on the site. The trees provide good cover, but are rarely utilized for forage.

Wyoming big sagebrush occurs within the openings. The stand is old and not very abundant producing just over 2% cover in 1994 and almost 4% in 1998. Density was estimated at 532 plants/acre in 1987, 25% of which were classified as young. The population dropped 12% as of 1991 with 466 plants/acre and 28% young. The new, much larger sample taken in 1994 estimated 780 plants/acre, all of which were mature or decadent plants. Some seedlings were encountered (100 plants/acre), giving a biotic potential of 13% which is good. Density declined 13% by 1998 to 680 plants/acre. No seedlings were encountered, but some young plants were counted. The sagebrush has been hedged heavily in the past and recovery appears to be slow on this dry site. Use was light to moderate in 1994 and 1998. Percent decadency has declined from a high of 64% in 1991, to 41% by 1994, and 38% by 1998. Poor vigor, especially for decadent plants, was very high at 38% in 1987. Vigor improved greatly by 1994, with only 8% of the population displaying poor vigor. However, that has increased to 21% by 1998. Currently ('98), 54% of the decadent sagebrush are classified as dying and young plants are not currently abundant enough to maintain the population under current conditions.

A few scraggly rubber rabbitbrush and ephedra were the only other palatable browse encountered on this end of the mesa. The most numerous woody plant is a small broom snakeweed which appears to be increasing. Population density was reported at 2,699 plants per acre in 1987, dropping by 91% to only 233 plants/acre in 1991. Numbers then rebounded in 1994 to 1,400, mostly mature snakeweed plants/acre. By 1998, density rose 62% to 3,660 plants/acre with abundant seedlings (biotic potential 10%) and young (43%) indicating an expanding population.

Herbaceous forage is limited. The most abundant grasses, sandhill muhly and blue grama, are both warm season increaser species. They are not very palatable or productive, but in high numbers, they can provide good soil protection. Other species include sand dropseed, Indian ricegrass, and bottlebrush squirreltail. All grasses combined produced only 6% cover in 1994 and 7% in 1998. Forbs are very limited. The only fairly common species is Carruth sage and a cryptantha which provided 90% of the forb cover in 1998.

1991 TREND ASSESSMENT

There is almost no rock or pavement to help protect what soils are left after the soil is eroded away by the wind and water. Vegetative basal cover is almost unchanged, from 4% to 5%. Litter cover has gone from 34% down to 24%. Percent bare ground has increased from 58% to 65%. Cryptogams have increased from 4% to 6%. This still points to a downward trend for soil. The key browse species, Wyoming big sagebrush, has decreased by 12% with percent decadency going from 31% up to 64%. The population in 1991 is now at only 466 plants/acre. The only good point for browse on this site was that broom snakeweed's population decreased by 91%. The trend for browse would still be down. The forb component of the herbaceous understory is poor. Most species only occur at very low frequencies. Carruth sage is the only forb with a very high frequency. There are five grasses that occur on the site, all are warm season increaser species except for Indian ricegrass, which is a cool season grass that has increased since the 1987 survey. This would indicate a slightly downward trend.

TREND ASSESSMENT

soil - down

browse - down

herbaceous understory - slightly downward

1994 TREND ASSESSMENT

Basic ground cover has continued to decline slightly since 1991. Percent bare ground for 1994 is 64% and cryptogamic crusts have declined from 6% cover to 2%. The new method used this year estimates aerial cover instead of basal cover so comparisons between 1991 and 1994 on vegetation cover should not be made. However, aerial cover is quite low at 14%. Trend for soil is slightly down. Trend for browse is mixed. Percent decadency has declined for Wyoming big sagebrush, vigor has improved and no shrubs were heavily hedged. The only down side for sagebrush is the lack of seedling and young plants. Another negative factor is the apparent rebound in the broom snakeweed population. Some, but probably not all of the increase in snakeweed can be explained by the new larger sample taken in 1994. Trend for browse is, therefore, stable at this time and will likely improve with normal precipitation patterns. The herbaceous understory is in poor condition and dominated by warm season increasers, sandhill muhly and blue grama, which produce little forage. The more preferred grasses, Indian ricegrass and prairie Junegrass, both declined in nested frequency, while blue grama and sandhill muhly increased. Forbs are scarce. Sum of nested frequency of perennial grasses and forbs has declined since 1991 indicating a slightly downward trend.

TREND ASSESSMENT

soil - slightly down

browse - stable

herbaceous understory - slightly downward

1998 TREND ASSESSMENT

Trend for soil is up with a major decline in percent bare ground from 64% in 1994 to 47% by 1998. In addition, litter cover doubled and cover of cryptogamic plants increased from only 2% to 15%. The rise in cryptogamic cover may be partly due to recent rain which makes these crusts easier to see. Vegetative cover also increased from 14% to 20%. Trend for the key browse species, Wyoming big sagebrush, is down slightly. Utilization is heavier than 1994, there is a higher proportion of plants displaying poor vigor, percent decadence is similar, but reproduction is still poor. Currently, there are more decadent/dying sagebrush (140 plants/acre) than young plants to replace them (80 plants/acre). In addition, density has declined 13% since 1994 and broom snakeweed has increased 62% and appears to be increasing. Trend for the herbaceous understory is up slightly. Sum of nested frequency of perennial grasses and forbs has increased. Production of forbs increased from less than 1% cover in 1994 to 3.7% by 1998. This is most likely due to better precipitation patterns which occurred in 1997 and 1998.

TREND ASSESSMENT

soil - up, but still very poor

browse - down slightly

herbaceous understory - up slightly

HERBACEOUS TRENDS --

Herd unit 25C, Study no: 15

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'87	'91	'94	'98	'87	'91	'94	'98	'04	'08
G	<i>Bouteloua gracilis</i>	_{ab} 45	_a 36	_{ab} 49	_b 71	18	16	20	28	.80	1.95
G	<i>Hilaria jamesii</i>	-	-	5	-	-	-	2	-	.03	-
G	<i>Muhlenbergia pungens</i>	80	116	109	101	35	43	39	39	4.89	4.05
G	<i>Munroa squarrosa</i> (a)	-	3	-	-	-	1	-	-	-	-
G	<i>Oryzopsis hymenoides</i>	_{ab} 22	_b 35	_a 18	_{ab} 32	9	17	8	14	.23	.12
G	<i>Sitanion hystrix</i>	-	-	1	2	-	-	1	2	.03	.01
G	<i>Sporobolus cryptandrus</i>	30	23	11	24	14	12	7	11	.13	.23
G	<i>Vulpia octoflora</i> (a)	-	-	_a 3	_b 32	-	-	1	14	.00	.07
Total Annual Grasses		0	3	3	32	0	1	1	14	0	0.07
Total Perennial Grasses		177	210	193	230	76	88	77	94	6.14	6.38
F	<i>Ambrosia acanthicarpa</i>	-	3	-	-	-	1	-	-	-	-
F	<i>Arabis</i> spp.	-	-	3	2	-	-	1	1	.00	.00
F	<i>Artemisia carruthii</i>	_c 58	_a 16	_{ab} 26	_{bc} 44	31	7	13	22	.74	1.16
F	<i>Astragalus</i> spp.	-	-	-	5	-	-	-	3	-	.01
F	<i>Chenopodium album</i> (a)	-	3	-	-	-	2	-	-	-	-
F	<i>Cryptantha cinerea</i>	_a 2	_a 7	_a 2	_b 32	1	5	1	13	.00	2.19
F	<i>Descurainia pinnata</i> (a)	-	-	10	5	-	-	3	3	.01	.01
F	<i>Dithyrea wislizeni</i> (a)	-	5	-	-	-	3	-	-	-	-
F	<i>Eriogonum cernuum</i> (a)	-	3	2	-	-	2	1	-	.00	-
F	<i>Erigeron</i> spp.	-	-	-	1	-	-	-	1	-	.00
F	<i>Gilia</i> spp. (a)	-	-	-	17	-	-	-	10	-	.10
F	<i>Hymenopappus filifolius</i>	5	1	-	-	4	1	-	-	-	-
F	<i>Lappula occidentalis</i> (a)	-	-	-	3	-	-	-	1	-	.00
F	<i>Oenothera latifolia</i>	_a -	_a -	_a -	_b 25	-	-	-	12	-	.18
F	<i>Penstemon</i> spp.	-	-	2	4	-	-	1	2	.00	.01
F	<i>Phlox longifolia</i>	-	-	-	4	-	-	-	2	-	.01
F	<i>Stephanomeria</i> spp.	-	2	-	-	-	1	-	-	-	-
F	Unknown forb-perennial	12	-	-	-	8	-	-	-	-	-
Total Annual Forbs		0	11	12	25	0	7	4	14	0.01	0.11
Total Perennial Forbs		77	29	33	117	44	15	16	56	.76	3.61

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --

Herd unit 25C, Study no: 15

Type	Species	Strip Frequency		Average Cover %	
		'94	'98	'94	'98
B	Artemisia tridentata wyomingensis	26	27	2.43	3.52
B	Chrysothamnus nauseosus	0	1	-	-
B	Chrysothamnus viscidiflorus	0	1	-	-
B	Ephedra viridis	1	0	.85	-
B	Gutierrezia sarothrae	36	47	.50	.93
B	Juniperus osteosperma	0	2	1.92	2.38
B	Opuntia spp.	5	5	.00	.15
B	Pinus edulis	0	2	2.20	2.26
Total for Browse		68	85	7.90	9.27

BASIC COVER --

Herd unit 25C, Study no: 15

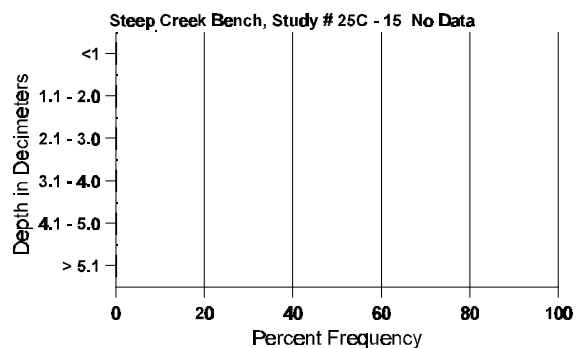
Cover Type	Nested Frequency		Average Cover %			
	'94	'98	'87	'91	'94	'98
Vegetation	223	252	3.75	4.75	13.81	20.29
Rock	18	-	0	0	.04	0
Pavement	15	22	0	.25	.05	.13
Litter	346	381	34.00	24.25	15.37	29.97
Cryptogams	90	205	4.00	6.00	1.75	14.82
Bare Ground	376	362	58.25	64.75	63.95	46.70

SOIL ANALYSIS DATA --

Herd Unit 25C, Study # 15, Study Name: Steep Creek Bench

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
22.4	59.0 (17.7)	7.2	89.4	4.4	6.2	.3	3.0	67.2	.4

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 25C, Study no: 15

Type	Quadrat Frequency	
	'94	'98
Rabbit	33	34
Horse	-	3
Deer	12	18
Cattle	2	2

BROWSE CHARACTERISTICS --

Herd unit 25C, Study no: 15

A G R E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total		
		1	2	3	4	5	6	7	8	9	1	2	3	4						
Artemisia tridentata wyomingensis																				
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
	94	3	-	-	2	-	-	-	-	-	5	-	-	-	100		5			
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
Y	87	3	1	-	-	-	-	-	-	-	3	-	1	-	133		4			
	91	-	2	-	-	2	-	-	-	-	4	-	-	-	133		4			
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
	98	2	-	-	2	-	-	-	-	-	4	-	-	-	80		4			
M	87	2	3	2	-	-	-	-	-	-	5	-	2	-	233	30	27			
	91	-	1	-	-	-	-	-	-	-	1	-	-	-	33	13	8			
	94	21	2	-	-	-	-	-	-	-	23	-	-	-	460	20	34			
	98	11	6	-	-	-	-	-	-	-	17	-	-	-	340	22	34			
D	87	3	1	1	-	-	-	-	-	-	1	1	3	-	166		5			
	91	-	3	1	-	4	-	1	-	-	5	-	-	4	300		9			
	94	10	3	-	2	-	-	1	-	-	13	-	-	3	320		16			
	98	6	7	-	-	-	-	-	-	-	6	-	-	7	260		13			
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0			
	94	2	-	-	-	2	-	-	-	-	2	-	-	-	320		16			
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	340		17			
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>									
		'87			31%			19%			38%			-12%						
		'91			86%			07%			29%			+40%						
		'94			13%			00%			08%			-13%						
		'98			38%			00%			21%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	532	Dec:	31%					
												'91	466		64%					
												'94	780		41%					
												'98	680		38%					

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus nauseosus																		
Y	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33		1	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	123	34	
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	1	
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'87		00%				00%				00%								
'91		00%				00%				00%								
'94		00%				00%				00%								
'98		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'91	0		-			
												'94	0		-			
												'98	20		-			
Chrysothamnus viscidiflorus																		
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20	15	16	
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'87		00%				00%				00%								
'91		00%				00%				00%								
'94		00%				00%				00%								
'98		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-			
												'91	0		-			
												'94	0		-			
												'98	40		-			
Ephedra viridis																		
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	94	-	-	1	-	-	-	-	-	-	1	-	-	-	20	29	48	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
'87		00%				00%				00%								
'91		00%				00%				00%								
'94		00%				100%				00%								
'98		00%				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-			
												'91	0		-			
												'94	20		-			
												'98	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	91	1	-	-	-	-	-	-	-	-	-	-	-	33			1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	98	22	-	-	-	-	-	-	-	-	-	-	-	440			22	
Y	87	18	-	-	-	-	-	-	-	-	-	-	3	600			18	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	15	-	-	-	-	-	-	-	-	-	-	-	300			15	
	98	78	-	-	-	-	-	-	-	-	-	-	-	1560			78	
M	87	59	-	-	-	-	-	-	-	-	-	1	-	1966	5	5	59	
	91	7	-	-	-	-	-	-	-	-	-	-	-	233	8	8	7	
	94	53	-	-	-	-	-	-	-	-	-	-	-	1060	6	9	53	
	98	104	-	-	-	-	-	-	-	-	-	-	-	2080	8	11	104	
D	87	4	-	-	-	-	-	-	-	-	-	2	1	133			4	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	1	-	-	1	-	-	-	-	-	-	-	-	40			2	
	98	1	-	-	-	-	-	-	-	-	-	-	1	20			1	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	20			1	
	98	-	-	-	-	-	-	-	-	-	-	-	-	160			8	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			09%			-91%							
'91		00%			00%			00%			+83%							
'94		00%			00%			00%			+62%							
'98		00%			00%			.54%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	2699	Dec:	5%			
												'91	233		0%			
												'94	1400		3%			
												'98	3660		1%			
Juniperus osteosperma																		
M	87	-	-	-	-	-	-	1	-	-	-	1	-	33	236	138	1	
	91	-	-	-	-	-	-	-	1	-	1	-	-	33	236	142	1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	98	-	-	-	-	-	-	-	2	-	2	-	-	40	-	-	2	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	20			1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%			+ 0%							
'91		00%			00%			00%										
'94		00%			00%			00%										
'98		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'91	33		-			
												'94	0		-			
												'98	40		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia spp.																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33		1	
	91	3	-	-	-	-	-	-	-	-	3	-	-	-	100		3	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	3	-	-	-	-	-	-	-	-	3	-	-	-	100		3	
	91	12	-	-	-	-	-	-	-	-	12	-	-	-	400		12	
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	87	7	-	-	-	-	-	-	-	-	7	-	-	-	233	3	6	
	91	6	-	-	-	-	-	-	-	-	6	-	-	-	200	4	10	
	94	18	-	-	-	-	-	-	-	-	18	-	-	-	360	3	16	
	98	4	-	-	-	-	-	-	-	-	4	-	-	-	80	4	12	
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	1	-	-	-	-	-	-	-	-	-	1	-	33		1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%			+47%							
'91		05%			00%			05%			-40%							
'94		00%			00%			00%			-74%							
'98		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	333	Dec:	0%			
												'91	633		5%			
												'94	380		0%			
												'98	100		0%			
Pinus edulis																		
S	87	-	-	-	-	-	-	1	-	-	1	-	-	-	33		1	
	91	-	-	-	-	-	-	1	-	-	1	-	-	-	33		1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	91	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	98	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	87	-	-	-	1	-	-	-	-	-	1	-	-	-	33	157	108	
	91	-	-	-	1	-	-	-	-	-	1	-	-	-	33	165	118	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	98	-	-	-	-	-	-	-	1	-	1	-	-	-	20	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%			+ 0%							
'91		00%			00%			00%										
'94		00%			00%			00%										
'98		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'91	33		-			
												'94	0		-			
												'98	40		-			